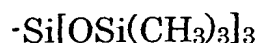


## Claims:

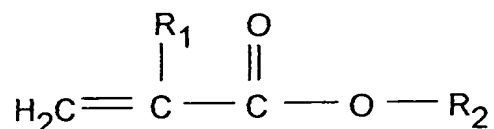
1. A flow and-leveling agent for a water base coating comprising a trimethylsilyl group-containing copolymer obtained by copolymerizing a reactive monomer (A) having a trimethylsilyl group represented by a structural formula:



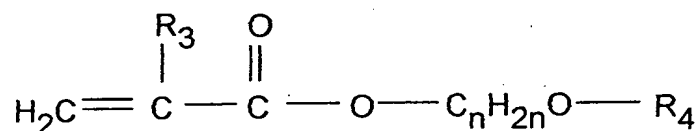
in a molecular structure and/or a reactive monomer (B) having a trimethylsilyl group in the form of a tris(trimethylsiloxy)silyl group represented by a structural formula:



in a molecular structure with a (meth)acrylic acid ester (C) represented by a formula:

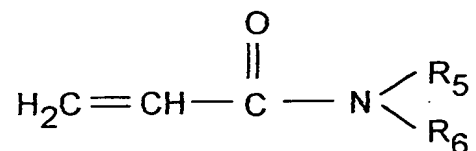


[wherein  $\text{R}_1$  represents a hydrogen atom or methyl, and  $\text{R}_2$  represents an alkyl group having 1 to 12 carbon atoms] and/or a (meth)acrylic acid ester (D) represented by a formula:

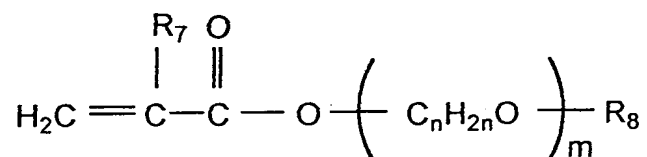


[wherein  $\text{R}_3$  represents a hydrogen atom or methyl;  $\text{R}_4$  represents

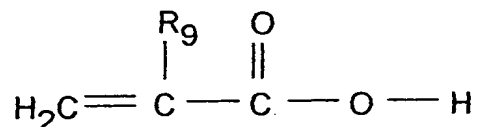
an alkyl group having 1 to 18 carbon atoms; and n represents an integer of 2, 3 or 4] and acrylamide (E) represented by a formula:



[wherein  $\text{R}_5$  and  $\text{R}_6$  each represent a hydrogen atom or an alkyl group having 1 to 8 carbon atoms] and/or a (meth)acrylic acid ester (F) represented by a formula:



[wherein  $\text{R}_7$  represents a hydrogen atom or methyl;  $\text{R}_8$  represents a hydrogen atom or an alkyl group having 1 to 18 carbon atoms; m represents an integer of 2 to 100, and n represents an integer of 2, 3 or 4; and  $-(\text{C}_n\text{H}_{2n}\text{O})_m$  means that 2 to 100 units of only one kind of a glycol unit out of three kinds of the glycol units in which n is 2, 3 and 4 are present and that total 2 to 100 units of two or three kinds of the glycol units out of three kinds of the above glycol units are present] and/or a (meth)acrylic acid (G) represented by a formula:



[wherein  $\text{R}_9$  represents a hydrogen atom or methyl],  
 wherein the above trimethylsilyl group-containing copolymer contains a trimethylsilyl group originating in the monomer (A) and/or

the monomer (B) in a proportion of 2 to 64 % by weight; it contains a copolymerization unit originating in the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) in a proportion of 2 % by weight or more; it contains a copolymerization unit originating in the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) in a proportion of 5 % by weight or more; and it has a number average molecular weight of 500 to 30000.

2. A flow-and-leveling agent for a water base coating comprising a trimethylsilyl group-containing copolymer obtained by reacting a copolymer of a multifunctional monomer into which a trimethylsilyl group or a tris(trimethylsiloxy)silyl group can be introduced, the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) described in the above item (1) and the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) described in the above item (1) with a trimethylsilyl group-containing compound and/or a tris(trimethylsiloxy)silyl group-containing compound, wherein the above trimethylsilyl group-containing copolymer contains a trimethylsilyl group in a proportion of 2 to 64 % by weight; it contains a copolymerization unit originating in the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) in a proportion of 2 % by weight or more; it contains a copolymerization unit originating in the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) in a proportion of 5 % by weight or more; and it has a number average molecular weight of 500 to 30000.

3. A flow-and-leveling agent for a water base coating comprising a trimethylsilyl group-containing copolymer obtained by copolymerizing the monomer (A) and/or the monomer (B) described in the above item (1), the (meth)acrylic acid ester (C) and/or the

(meth)acrylic acid ester (D) described in the above item (1) and the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) described in the above item (1) with a reactive monomer (H) capable of being copolymerized with them, wherein the above copolymer contains a trimethylsilyl group originating in the monomer (A) and/or the monomer (B) in a proportion of 2 to 64 % by weight; it contains a copolymerization unit originating in the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) in a proportion of 2 % by weight or more; it contains a copolymerization unit originating in the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) in a proportion of 5 % by weight or more; it contains a copolymerization unit originating in the monomer (H) in a proportion of not exceeding 50 % by weight; and it has a number average molecular weight of 500 to 30000.

4. A flow-and-leveling agent for a water base coating comprising a trimethylsilyl group-containing copolymer obtained by reacting a copolymer of the multifunctional monomer described in the above item (2), the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) described in the above item (1), the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) described in the above item (1) and a reactive monomer (H) capable of being copolymerized with them with a trimethylsilyl group-containing compound and/or a tris(trimethylsiloxy)silyl group-containing compound, wherein the above trimethylsilyl group-containing copolymer contains a trimethylsilyl group in a proportion of 2 to 64 % by weight; it contains a copolymerization unit originating in the (meth)acrylic acid ester (C) and/or the (meth)acrylic acid ester (D) in a proportion of 2 % by weight or more; it contains a copolymerization unit originating in the acrylamide (E) and/or the (meth)acrylic acid ester (F) and/or the (meth)acrylic acid (G) in a

proportion of 5 % by weight or more; it contains a copolymerization unit originating in the monomer (H) in a proportion of not exceeding 50 % by weight; and it has a number average molecular weight of 500 to 30000.

5. The flow-and-leveling agent for a water base coating as described in any of claims 1 to 4, wherein the monomer (A) and/or the monomer (B) are selected from the group consisting of 3-methacryloxypropyltrimethylsilane, 3-methacryloxypropyltris(trimethylsiloxy)silane, and vinyltris(trimethylsiloxy)silane,

6. The flow-and-leveling agent for a water base coating as described in any of claims 1 to 4, wherein the trimethylsilyl group-containing compound and/or the tris(trimethylsiloxy)silyl group-containing compound are selected from the group consisting of trimethylchlorosilane, hexamethyldisilazane, tris(trimethylsiloxy)hydrosilane, 3-aminopropyltris(trimethylsiloxy)silane and 3-mercaptopropyltris(trimethylsiloxy)silane.

7. The flow-and-leveling agent for a water base coating as described in any of claims 1 to 4, wherein the (meth)acrylic acid ester (C) is selected from the group consisting of methyl (meth)acrylate, ethyl (meth)acrylate, normal propyl (meth)acrylate, isopropyl (meth)acrylate, normal butyl (meth)acrylate, isobutyl (meth)acrylate, tertiary butyl (meth)acrylate, normal octyl (meth)acrylate, 2-ethylhexyl (meth)acrylate, isononyl (meth)acrylate and lauryl (meth)acrylate.

8. The flow-and-leveling agent for a water base coating as described in any of claims 1 to 4, wherein the (meth)acrylic acid ester (D) is selected from the group consisting of 2-methoxyethyl (meth)acrylate, 2-ethoxyethyl (meth)acrylate, 2-butoxyethyl (meth)acrylate, 2-octoxyethyl (meth)acrylate, 2-lauroxyethyl (meth)acrylate, 2-stearoxyethyl (meth)acrylate, 3-methoxybutyl (meth)acrylate and 4-methoxybutyl (meth)acrylate.

9. The flow-and-leveling agent for a water base coating as described in any of claims 1 to 4, wherein the acrylamide (E) is selected from the group consisting of acrylamide, N-methylacrylamide, N-ethylacrylamide, N-isopropylacrylamide, N-normal butylacrylamide, N-tertiary butylacrylamide, N-2-ethylhexylacrylamide, N,N-dimethylacrylamide, N,N-diethylacrylamide and diacetoneacrylamide.

10. The flow-and-leveling agent for a water base coating as described in any of claims 1 to 4, wherein the (meth)acrylic acid ester (F) is selected from the group consisting of ethylcarbitol (meth)acrylate, methoxypolyethylene glycol (meth)acrylate, methoxypolypropylene glycol (meth)acrylate, methoxypoly(ethylene-propylene) glycol (meth)acrylate, methoxypoly(ethylene-tetramethylene) glycol (meth)acrylate, butoxypoly(ethylene-propylene) glycol (meth)acrylate, octoxypoly(ethylene-propylene) glycol (meth)acrylate, lauroxypolyethylene glycol (meth)acrylate and lauroxypoly(ethylene-propylene) glycol (meth)acrylate.

11. The flow-and-leveling agent for a water base coating as described in claim 2 or 4, wherein the multifunctional monomer is selected from the group consisting of (meth)acrylic acid, 2-hydroxyethyl (meth)acrylate, glycidyl (meth)acrylate, 2-

isocyanatoethyl (meth)acrylate, those in which  $R_8$  is a hydrogen atom in the formula representing the (meth)acrylic acid ester (F), allyl glycidyl ether, 2-hydroxyethyl vinyl ether and 4-hydroxybutyl vinyl ether.

12. The flow-and-leveling agent for a water base coating as described in claim 3 or 4, wherein the monomer (H) is selected from the group consisting of (meth)acrylates other than (C), (D) and (F) described above such as tridecyl (meth)acrylate, myristyl (meth)acrylate, hexadecyl (meth)acrylate, stearyl (meth)acrylate, behenyl (meth)acrylate, cyclohexyl (meth)acrylate, isobonyl (meth)acrylate and nonylphenoxypolyethylene glycol (meth)acrylate; aromatic hydrocarbon base vinyl compounds such as styrene,  $\alpha$ -methylstyrene, chlorostyrene and vinyltoluene; vinyl esters or allyl compounds such as vinyl acetate, vinyl propionate and diallyl phthalate; vinyl ethers such as ethyl vinyl ether, normal propyl vinyl ether, isopropyl vinyl ether, normal butyl vinyl ether, isobutyl vinyl ether, tertiary butyl vinyl ether, normal octyl vinyl ether, 2-ethylhexyl vinyl ether, methyl vinyl ether and cyclohexyl vinyl ether; vinyl chloride; vinylidene chloride; chloroprene; propylene; butadiene; isoprene; and fluoroolefinmaleimide.